

REMARKS

This Amendment is intended as a full and complete response to the non-final Office Action dated February 22, 2007. In the Office Action, the Examiner states that claims 1-11 and 13-20 are pending and stand rejected. By this Amendment, claims 1 and 16-18 have been amended, claims 4 and 12 are canceled, and claims 2, 3, 5-11, 13-15, 19 and 20 continue unamended.

In view of both the amendments presented above and the following discussion, the Applicants submit that none of the claims now pending in the application are obvious under the provision of 35 U.S.C. § 103. Thus, the Applicants believe that all of these claims are now in allowable form.

Rejections Under 35 U.S.C. § 103

A. Claims 1-15 and 18-19

Claims 1-15 and 18-19 stand rejected under 35 U.S.C. §103 as being obvious over EP Patent No. 0 304 002 to Kleine (hereinafter Kleine '002 patent). The rejection is respectfully traversed.

Independent claim 1, as amended, recites:

A shank for a rotary and/or percussive tool, comprising:
at least two, axially spaced, guide regions (1a, 1b);
at least one radially projecting entrain strip (2) arranged between the at least two guide regions (1a, 1b); and
at least one locking groove (3) arranged between the at least two guide regions (1a, 1b), the at least one locking groove (3) being axially closed at opposite ends thereof and adapted to receive at least one radially displaceable and axially displaceable, within predetermined limits, locking member (4) of a chuck,
wherein the two guide regions (1a, 1b) have identical diameters equal to a guide dimension (F), and an axial region (A) of the at least one locking groove (3) has a cross-sectional width (B) that includes a radial extent of the entrain strip (2), and a thickness (D) measured in a direction transverse to the width measurement direction, and
wherein the guide dimension (F) is greater than the thickness (D) but smaller than the width (B), and wherein a maximum aperture angle (α) of a bottom surface of the at least one locking groove (3), which is defined by a cross-section of the axial region (A) of the at least one locking groove (3), amounts to 180°. (Emphasis added).

As a preliminary matter, we believe that it would be helpful to review the appropriate standard under 35 U.S.C. § 103 for analyzing the features of a claim with respect to the prior art. It is well settled that [t]he test under 35 U.S.C. § 103 is not whether an improvement or a use set forth in a patent would have been obvious or non-obvious; rather the test is whether the claimed invention, considered as a whole, would have been obvious. Jones v. Hardy, 110 USPQ 1021, 1024 (Fed. Cir. 1984) (emphasis added). The cited patent fails to teach or suggest the Applicant's invention as a whole.

The Kleine '002 patent fails to teach or suggest the Applicants' claimed invention as a whole. In particular, the Kleine '002 patent discloses:

Between clamping shaft 11 and drill shaft 13 there are the tang surfaces 16 that are located concentric to the drill longitudinal axis, as indicated in Figure 2 as a hexagon with the width across flats 17. The tang surfaces 16 are equipped with recesses in the form of longitudinal grooves 18, whose groove walls have preferably and arched cross section that are enclosed for transfer of the axial force to the machine-side end 19 and are joined at the front end by insertion grooves 20 to the drill shaft 13, as indicated in Figure 3. The grooves 18 in the tang surfaces 16 have a recess 21 at the side facing away from the cutting edges 15 in order to reduce the axial mobility (Figure 3). (See Kleine '002, page 6, lines 6-12, Figs. 1-3, Emphasis added).

Accordingly, the Kleine '002 patent uses a spherical locking element guided in a ball shaped groove. By contrast, the present invention is a shank for a rotary and/or percussive tool that has a maximum aperture angle (α) of a bottom surface of the at least one locking groove (3) of 180 degrees. The Kleine '002 patent teaches away from the present invention since expanding the locking grooves to 180 degrees would result in having only a hexagonal cross-section. Further, the essential relationship of the guide dimension (F) is greater than the thickness (D) but smaller than the width (B), i.e., $D < F < B$, would not be satisfied, thereby teaching away from the present invention. The structural configuration of the present invention, which includes both (i)

the guide dimension (F) is greater than the thickness (D) but smaller than the width (B), and (ii) a maximum aperture angle (α) of a bottom surface of the at least one locking groove (3) of 180 degrees, is not disclosed or suggested in the Kleine '002 patent. Therefore, the Kleine'002 patent fails to teach or suggest the present invention as a whole.

As such, it is submitted that independent Claim 1 is not obvious and fully satisfies 35 U.S.C. §103 and is patentable thereunder. Claims 4 and 12 have been canceled, and claims 2, 3, 5-11, 13-15, 18 and 19 depend, either directly or indirectly, from independent claim 1 and recite additional features of the invention. It is submitted that for at least the same reasons discussed above, all of these dependent claims fully satisfy the requirements under 35 U.S.C. §103 and are patentable thereunder. Therefore, it is respectfully requested that the claim rejections be withdrawn.

B. Claims 16, 17 and 20

Claims 16, 17 and 20 stand rejected under 35 U.S.C. §103 as being obvious over EP Patent No. 0 304 002 to Kleine (hereinafter Kleine '002 patent). The rejection is respectfully traversed.

Independent claim 16 and similarly, independent claim 17, as amended, recites:

A tool set, comprising:

a chuck; and

a first tool having:

a shank having at least two, axially spaced, guide regions (1a, 1b);

at least one radially projecting entrain strip (2) arranged between

the at least two guide regions (1a, 1b); and

at least one locking groove (3) arranged between the at least two guide regions (1a, 1b), the at least one locking groove being axially closed at opposite ends thereof, and adapted to receive at least one radially displaceable and axially displaceable, within predetermined limits, locking member (4) of the chuck, with the two guide regions (1a, 1b) having identical diameters equal to a guide dimension (F), and an axial region (A) of the locking groove (3) having a cross-sectional width (B) that includes a radial extent of the entrain strip (2), and a thickness (D) measured in a direction transverse to width measurement direction, and with the guide dimension (F) being

greater than the thickness (D) but smaller than the width (B); and a second tool having a similar shank,

wherein the axial region (A) of the shank of the first tool has a thickness/width ratio greater than a thickness/width ratio of the axial region (A) of the shank of the second tool, and wherein a maximum aperture angle (α) of a bottom surface of the at least one locking groove (3), which is defined by a cross-section of the axial region (A) of the at least one locking groove (3), amounts to 180°.

As described above, the Kleine '002 patent uses a spherical locking element guided in a ball shaped groove. By contrast, the present invention is a shank for a rotary and/or percussive tool that has a maximum aperture angle (α) of a bottom surface of the at least one locking groove (3) of 180 degrees. The Kleine '002 patent teaches away from the present invention since expanding the locking grooves to 180 degrees would result in having only a hexagonal cross-section. Further, the essential relationship of the guide dimension (F) is greater than the thickness (D) but smaller than the width (B), i.e., $D < F < B$, would not be satisfied, thereby teaching away from the present invention. The structural configuration of the present invention, which includes both (i) the guide dimension (F) is greater than the thickness (D) but smaller than the width (B), and (ii) a maximum aperture angle (α) of a bottom surface of the at least one locking groove (3) of 180 degrees, is not disclosed or suggested in the Kleine '002 patent. Therefore, the Kleine '002 patent fails to teach or suggest the present invention as a whole.

As such, it is submitted that independent Claims 16 and 17 are not obvious and fully satisfy 35 U.S.C. §103 and is patentable thereunder. Claim 20 depends from independent claim 16 and recites additional features of the invention. It is submitted that for at least the same reasons discussed above, this dependent claim fully satisfies the requirements under 35 U.S.C. §103 and is patentable thereunder. Therefore, it is respectfully requested that the claim rejections be withdrawn.

CONCLUSION

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance, and allowance of the application is respectfully requested.

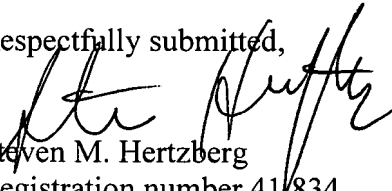
Should the Examiner require or consider it advisable that the specification, claims and/or drawings be further amended or corrected in formal respects in order to place the case in condition for final allowance, it is respectfully requested that such amendment or correction be carried out by Examiner's Amendment and the case passed to issue. Alternatively, should the Examiner believe that a personal discussion might be helpful in advancing this case to allowance, the Examiner is invited to telephone the undersigned at (212) 885-9223 so that the appropriate arrangements can be made for resolving such issues as expeditiously as possible.

The Commissioner is hereby authorized to charge any fees, or to credit any overpayment, due by reason of this Amendment to Deposit Account No. 01-0035.

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